# METHODS AND APPARATUS FOR COOLING GAS TURBINE ENGINE ROTOR ASSEMBLIES

## ABSTRACT OF THE DISCLOSURE

A method facilitates assembling a gas turbine engine. The method comprises providing a rotor assembly including a rotor shaft and a rotor disk that includes a radially outer rim, a radially inner hub, and an integral web extending therebetween, wherein the rotor assembly is rotatable about an axis of rotation extending through the rotor shaft, and coupling a disk retainer including at least one discharge tube to the rotor disk wherein the discharge tube extends outwardly from the disk retainer for pumping the air to a higher pressure before discharging cooling fluid therefrom in a direction that is substantially perpendicular with respect to the axis of rotation.